

# SURFA

## 48<sup>th</sup> Financial Forum

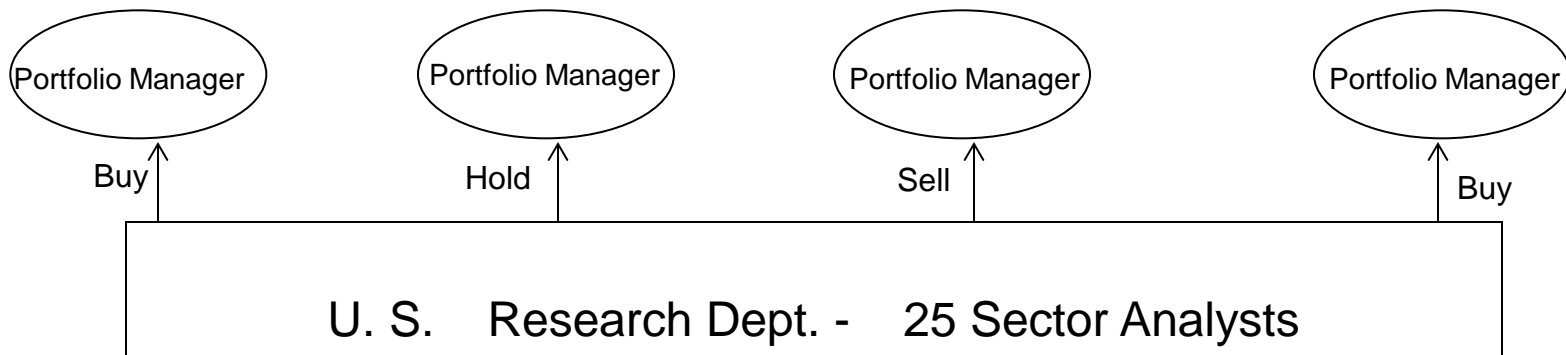
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# JP Morgan Asset Management

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- Assets Under Management ~ \$1.3 trillion globally
- US Equity manages ~ \$240 billion in core, growth, value and quantitative strategies
- Who are our clients?
  - Proprietary Mutual Funds
  - Institutions- i.e. pension funds, sovereign wealth funds, nuclear decommissioning trust funds
  - Individuals - mid to high net worth individuals through the Private Bank
- How are we structured? How are ideas placed in portfolios?



# How Do I Conduct Due Diligence on Companies?

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## Meetings With:

Companies

Regulators

Interveners –

- consumer advocate

- industrial & commercial users groups

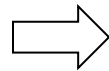
Suppliers

Private companies/developers

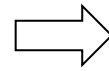
Rating agencies

Trade groups - SEIA, AWEA

New entrants – Solar City, Sun Run



Financial Forecasts



Stock Selection

# How Do I Differentiate Between Regulated Utilities

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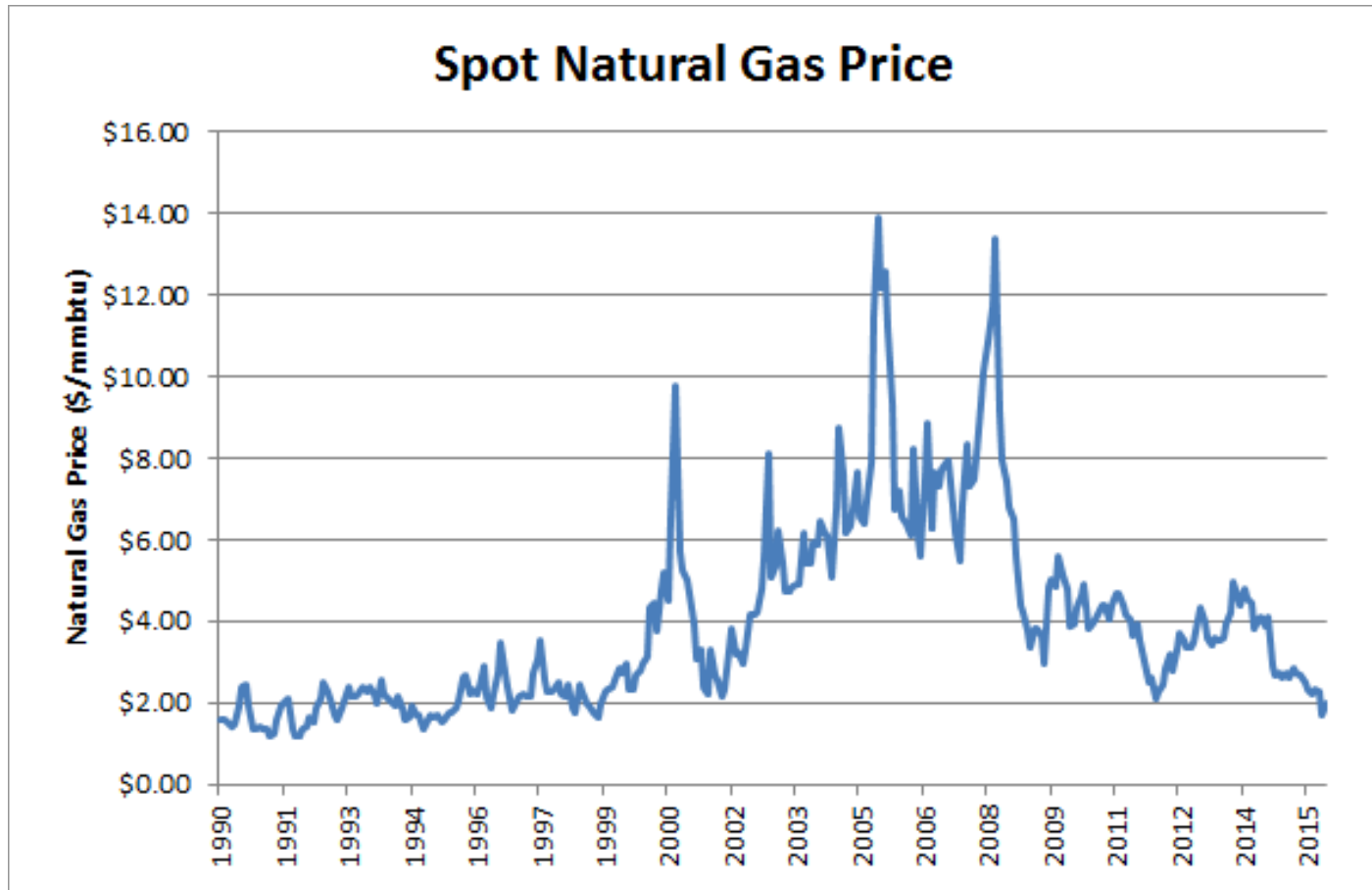
- Level of authorized ROE and ability to actually earn it
- Regulatory lag - trackers, forward test year
- Magnitude of capital deployment opportunity
- Substitution of steel for fuel, or substitution of capital for O&M
- Customer bill impact



Compare risk adjusted growth prospects and valuation to determine ultimate stock selection.

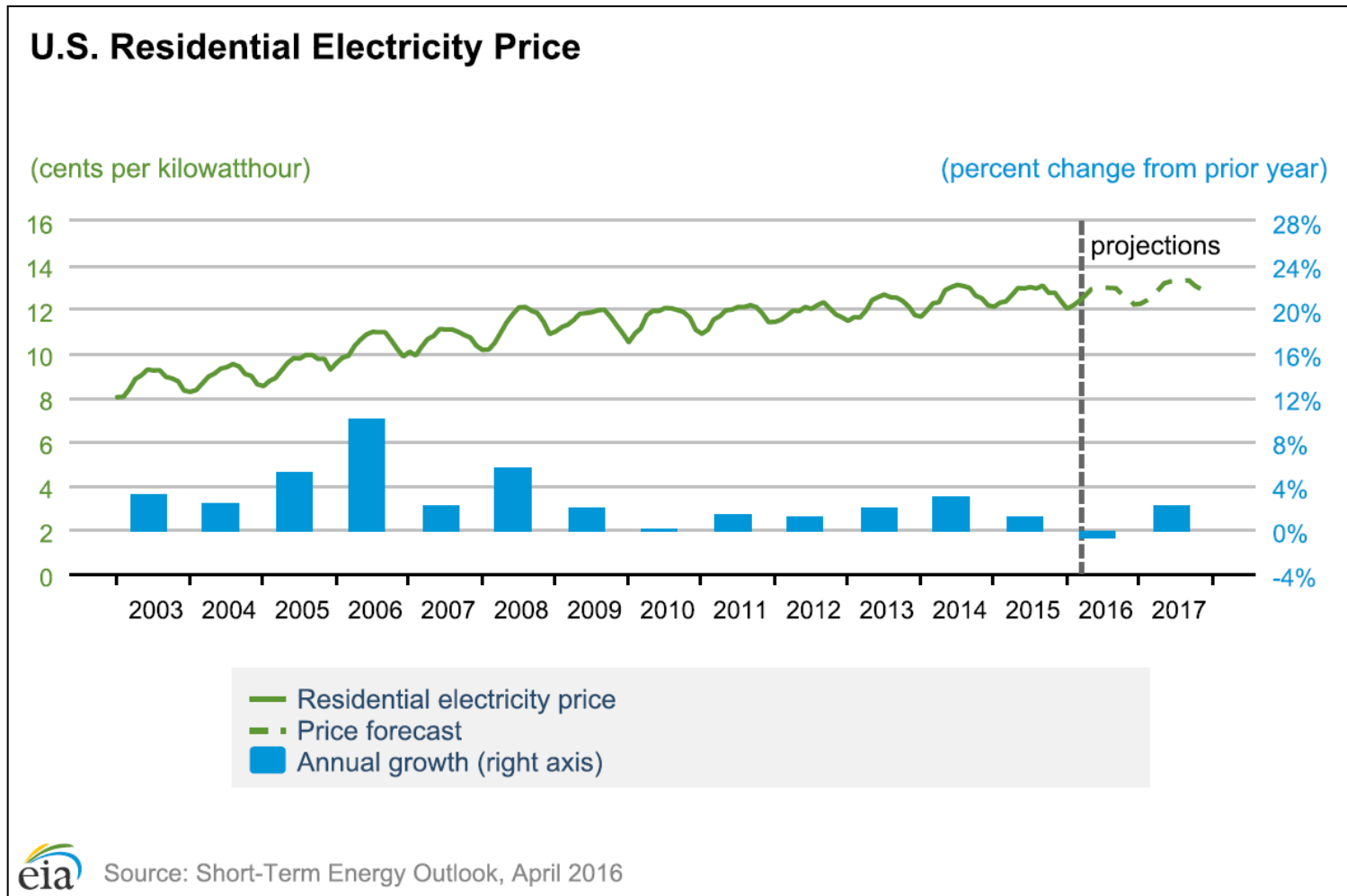
A key component of the risk adjustment is an assessment of the regulatory environment.

## Natural Gas Is The Same Price As in 1990!



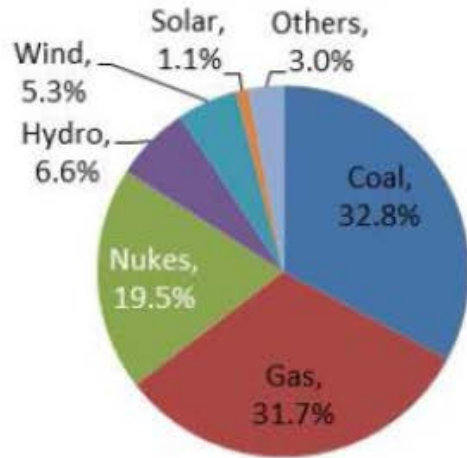
Source: Bloomberg

# Year/Year Growth in Residential Electricity Prices Very Modest



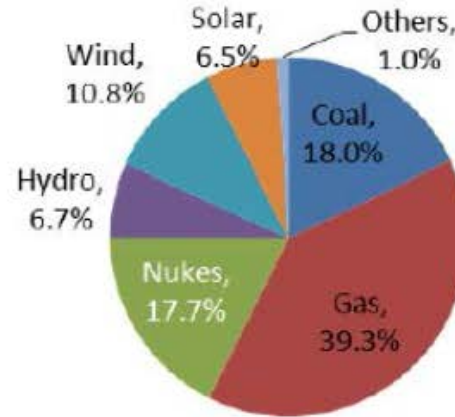
# Can Utility Sector Adapt to The Changing Landscape?

Generation Output Mix in 2015 (MWh)



Source: EIA, UBS estimates

Generation Output Mix in 2030 (MWh)

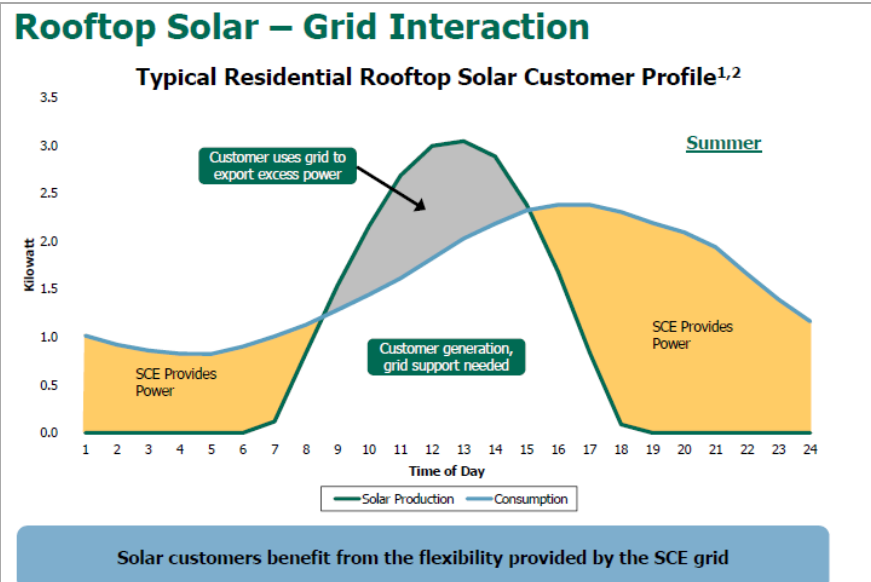


Source: EIA, UBS estimates

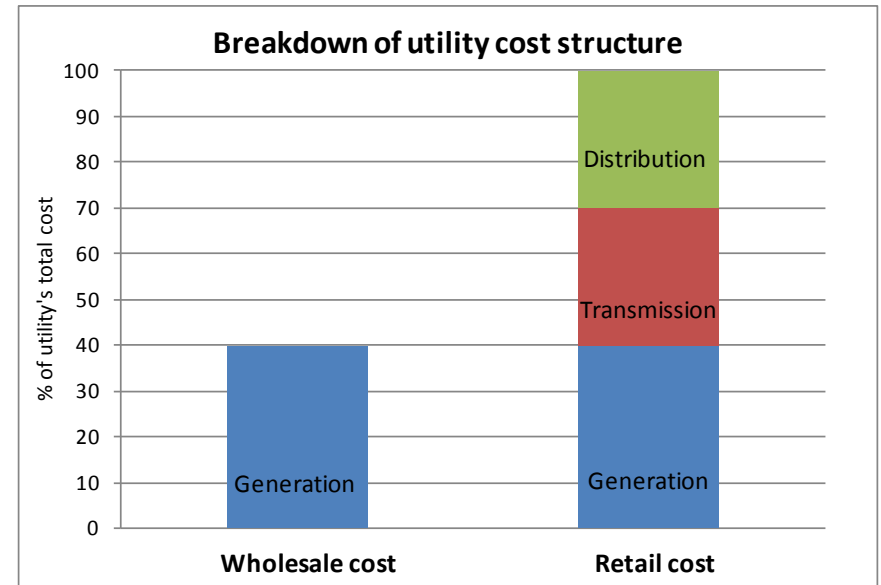
# Distributed Generation Could Be A Key Threat to Utility Model

California customer profile shows 7 hours of excess capacity throughout the day. Net metering allows consumers to sell the excess power back into the grid at the retail price, *not the wholesale price*.

When solar consumers sell back to the grid at the retail rate, they are forgoing the costs of transmission and distribution that the utilities must bear. The problem is that 60% of utilities costs are fixed while revenues are volumetrically based.



Source: Edison Intl. Investor presentation

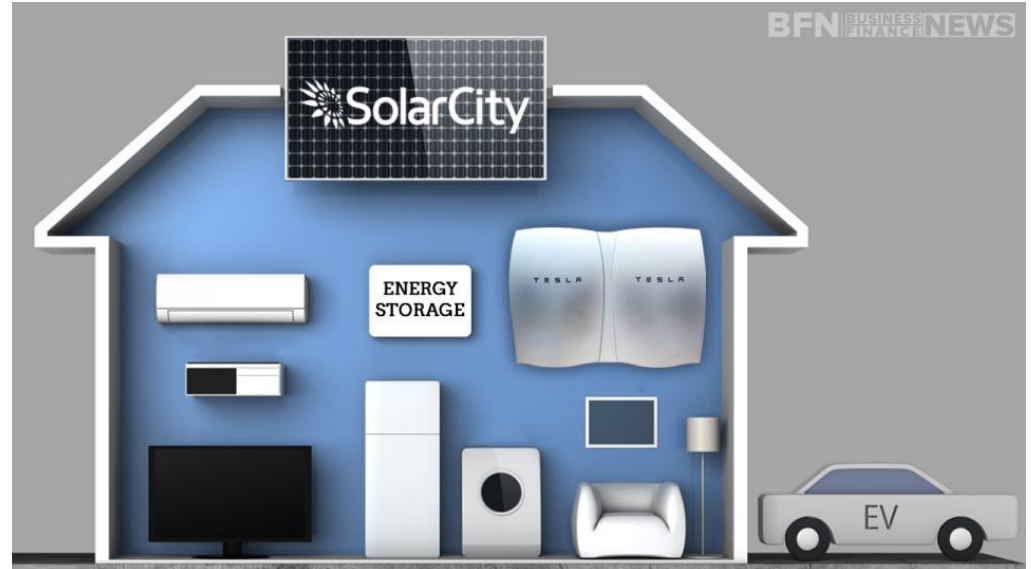


Source: JPMAM



## Warning - Change Ahead!

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Large scale battery storage could be the Uber of the utility sector

Distributed generation + battery storage = stranded generation and transmission assets ??

# Investment Implications - Capital Allocation Decisions

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## ■ Gas Transmission -

- There is a short term need to relieve bottlenecks which will fundamentally change the direction of gas flows out of the Marcellus/Utica regions
- Buildout initially done by end of 2018.

## ■ Electric Transmission -

- More transmission needed to bring wind and solar from remote areas to population centers, as well as to interconnect new gas fired generation.

## ■ Electric Distribution -

- Grid modernization needed to handle the two way flow of power, intermittency of renewable generation, and remote controlled electricity consumption.
- Aging infrastructure replacement of electric & gas distribution also needed in most places.

## ■ Generation –

- New gas plants attractive near term given high spark spreads, but longer term baseload growth uncertain
- Baseload coal and nuclear plants out of the money at low gas price
- Renewable generation will gain market share nationwide

# J.P. Morgan Asset Management

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